

Signify Classified - Internal
Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269



Scaled data based on original data using
LM-79-2019 Approved Method: Electrical and Photometric Measurements of Solid-
State Lighting Products

Test Report Prepared for

Cooper Lighting Solutions

Brand: McGRAW-EDISON

Report Number: P629580

Luminaire Tested: GWS-SA1B-830-U-T2-W-GRSBK

Issue Date: 1/10/2023

Test Information

Test Method: LM-79-2019
Report Number: P629580
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-20)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 1/10/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: McGRAW-EDISON
Catalog Number: GWS-SA1B-830-U-T2-W-GRSBK
Description: GALLEON WALL SLIM LUMINAIRE. (1) LIGHTSQUARES WITH 16 LEDS EACH AND TYPE II OPTICS W/ FACTORY INSTALLED GLARE SHIELD, BK
Light Source: (16) 3000K CCT, 80 CRI LEDS
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1691.2 lumens
Efficiency: N/A
Efficacy: 67.6 lumens/watt
Luminous Opening: Rectangular (W 0.5' x L: 0.5' x H: 0')
IES Classification: Type II - Short
BUG Rating: B0 - U0 - G0

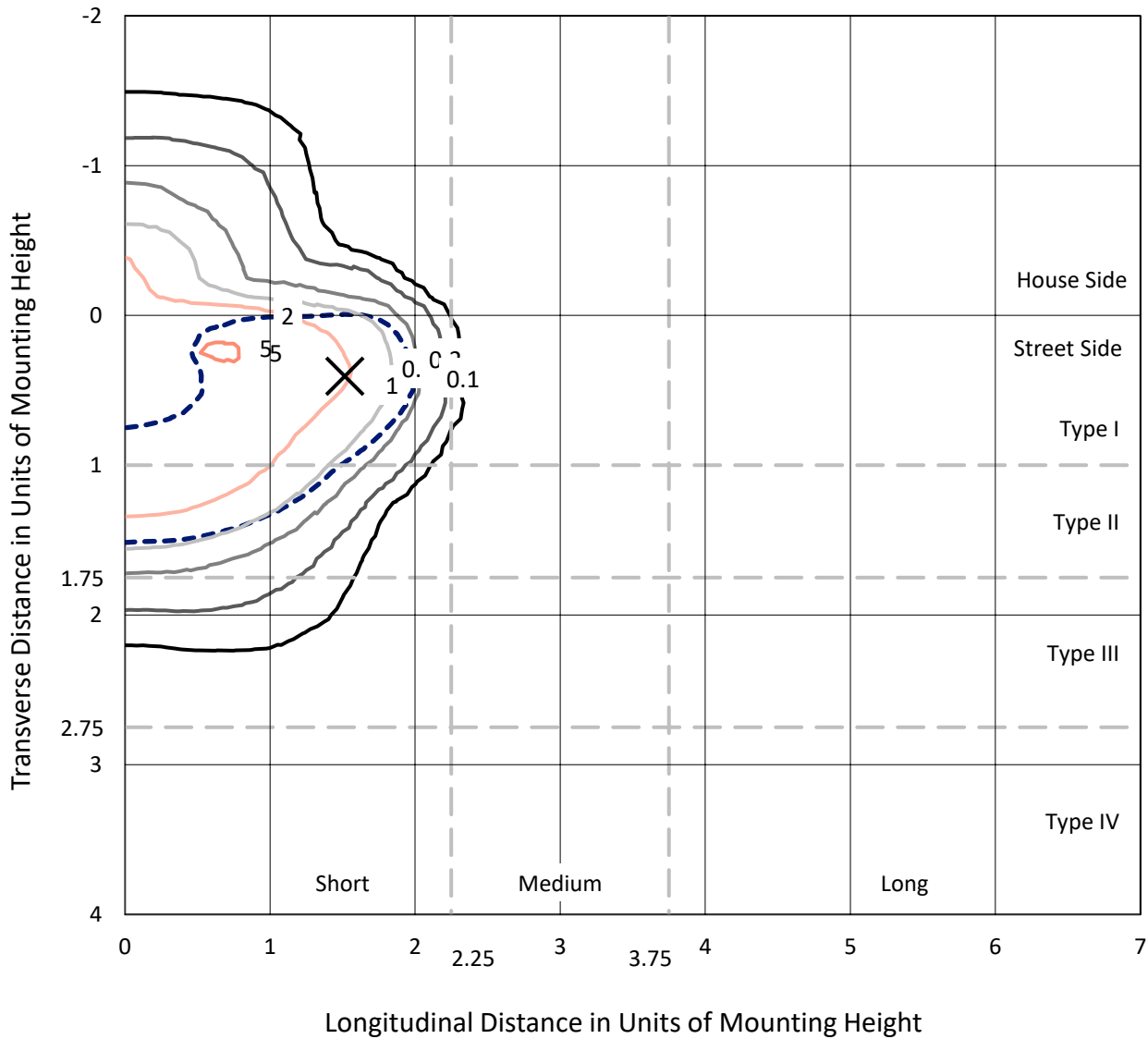
Input Watts (W): 25
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 0
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



REPORT NUMBER: P629580
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Iso-Footcandle Lines of Horizontal Illumination

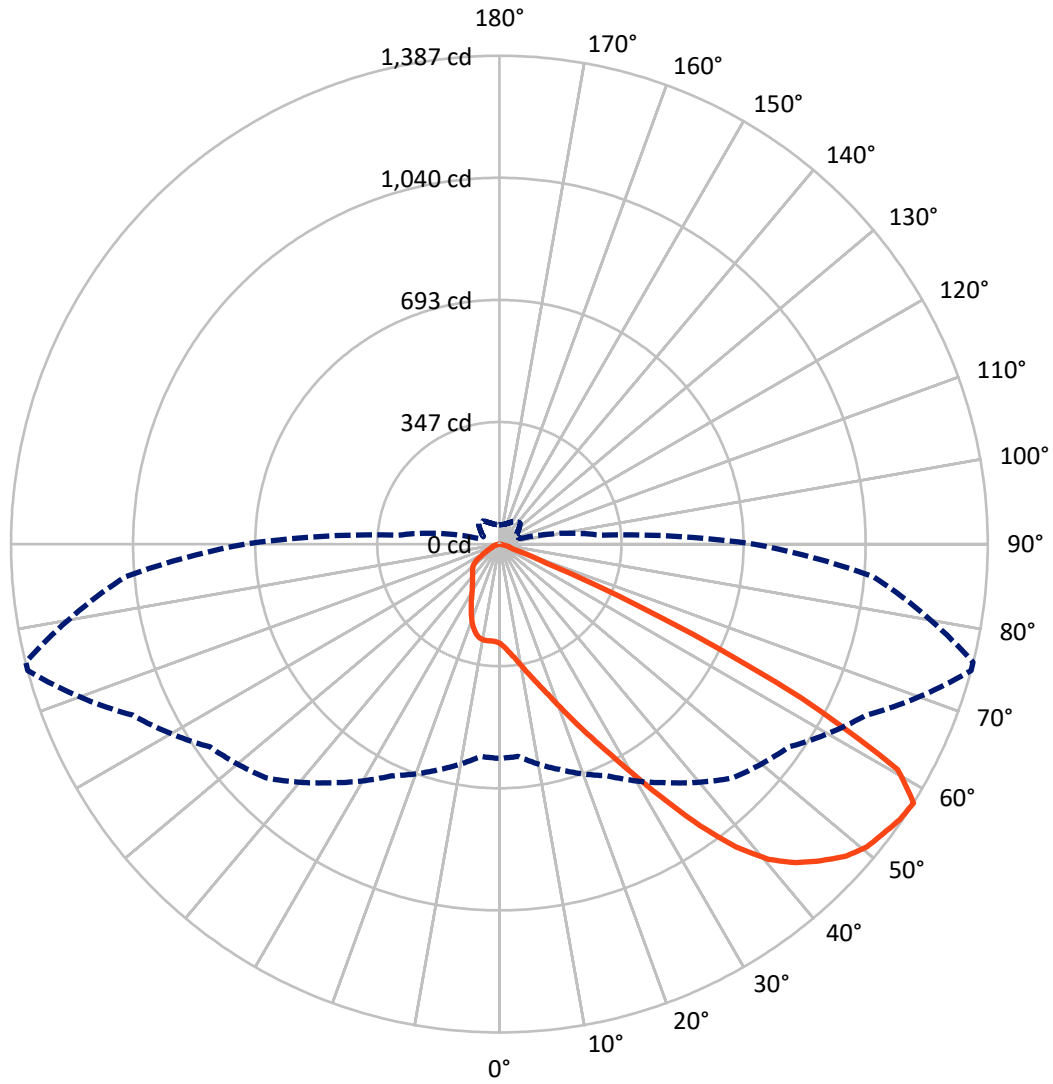
✕ Max cd
 - - - 1/2 Max cd



Based on 10 foot mounting height. Maximum calculated value = 5.3 fc
 Type II - Short - N/A

REPORT NUMBER: P629580
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Luminous Intensity Polar Plot



— Vertical Plane Through 75-Deg Lateral - - - Horizontal Cone Through 57.5-Deg Vertical

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FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|--------|
| House Side | Lumens | 276.3 | 0.0 | 276.3 |
| | % Fixture | 16.3 | 0.0 | 16.3 |
| Street Side | Lumens | 1414.9 | 0.0 | 1414.9 |
| | % Fixture | 83.7 | 0.0 | 83.7 |
| Total | Lumens | 1691.2 | 0.0 | 1691.2 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 28.7 | 1.7 |
| 10°-20° | 93.2 | 5.5 |
| 20°-30° | 170.7 | 10.1 |
| 30°-40° | 283.3 | 16.8 |
| 40°-50° | 432.6 | 25.6 |
| 50°-60° | 486.1 | 28.7 |
| 60°-70° | 179.3 | 10.6 |
| 70°-80° | 17.1 | 1.0 |
| 80°-90° | 0.0 | 0.0 |
| 90°-100° | 0.0 | 0.0 |
| 100°-110° | 0.0 | 0.0 |
| 110°-120° | 0.0 | 0.0 |
| 120°-130° | 0.0 | 0.0 |
| 130°-140° | 0.0 | 0.0 |
| 140°-150° | 0.0 | 0.0 |
| 150°-160° | 0.0 | 0.0 |
| 160°-170° | 0.0 | 0.0 |
| 170°-180° | 0.0 | 0.0 |
| 0°-90° | 1691.2 | 100.0 |
| 0°-180° | 1691.2 | 100.0 |

Coefficient of Utilization



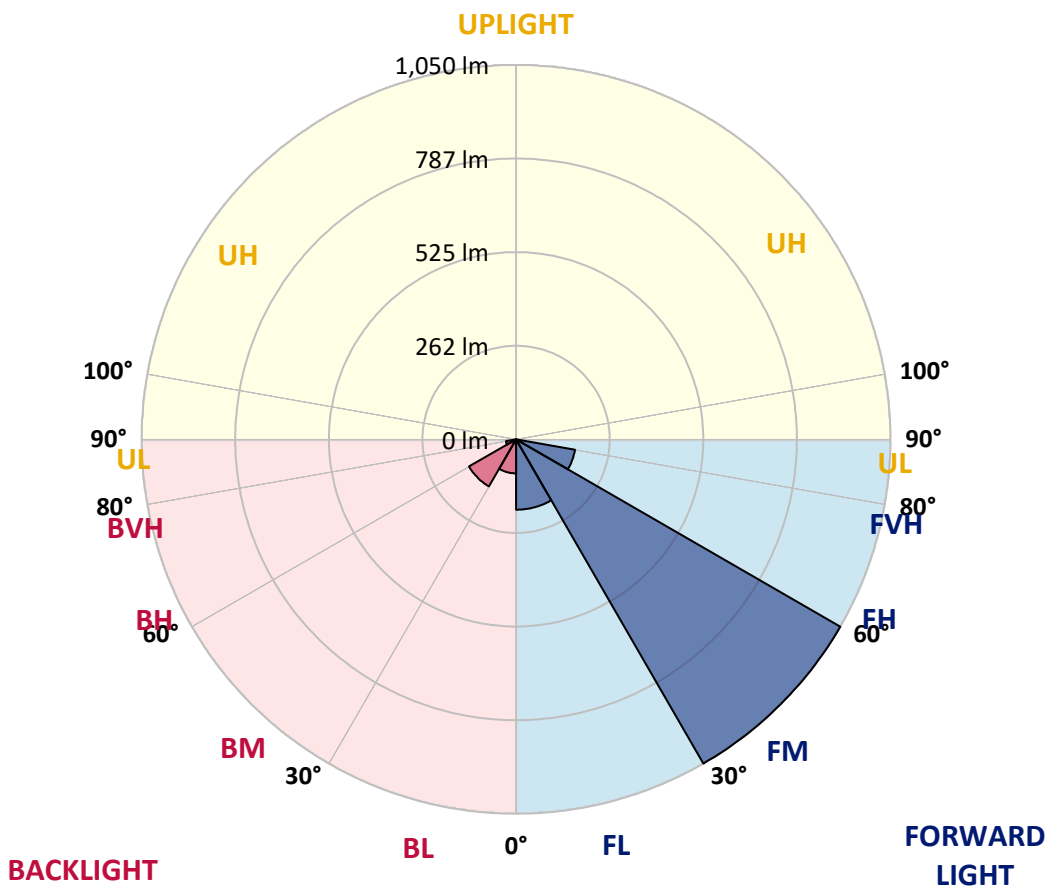
REPORT NUMBER: P629580

CATALOG NUMBER: GWS-SA1B-830-U-T2-W-GRSBK

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|--------|
| | | | B | U | G |
| FL (0°-30°) | 197.4 | 11.7 | | | |
| FM (30°-60°) | 1049.8 | 62.1 | | | |
| FH (60°-80°) | 167.8 | 9.9 | | | G0/660 |
| FVH (80°-90°) | 0.0 | 0.0 | | | G0/10 |
| BL (0°-30°) | 95.3 | 5.6 | B0/110 | | |
| BM (30°-60°) | 152.2 | 9.0 | B0/220 | | |
| BH (60°-80°) | 28.7 | 1.7 | B0/110 | | G0/110 |
| BVH (80°-90°) | 0.0 | 0.0 | | | G0/10 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B0-U0-G0
 Type II Short





REPORT NUMBER: P629580
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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 75° | 76° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 282.1 | 282.1 | 282.1 | 282.1 | 282.1 | 282.1 | 282.1 | 282.1 | 282.1 | 282.1 | 282.1 |
| 2.5° | 315.1 | 318.4 | 317.4 | 315.3 | 314.1 | 309.8 | 307.2 | 299.4 | 293.9 | 293.3 | 288.2 |
| 5° | 354.9 | 354.3 | 353.5 | 351.1 | 349.0 | 342.3 | 334.3 | 321.3 | 309.6 | 308.2 | 297.4 |
| 7.5° | 376.8 | 377.2 | 377.6 | 377.2 | 375.8 | 370.6 | 361.9 | 346.6 | 328.8 | 327.6 | 310.4 |
| 10° | 385.8 | 386.6 | 388.6 | 392.5 | 396.0 | 395.5 | 390.4 | 374.7 | 352.9 | 350.9 | 327.8 |
| 12.5° | 390.0 | 391.1 | 394.3 | 401.7 | 411.1 | 418.4 | 419.2 | 405.1 | 381.1 | 377.8 | 348.4 |
| 15° | 396.0 | 397.0 | 401.1 | 410.7 | 424.3 | 438.8 | 448.2 | 439.2 | 412.3 | 408.8 | 371.1 |
| 17.5° | 398.6 | 400.0 | 406.0 | 418.6 | 436.4 | 458.6 | 479.8 | 479.0 | 449.2 | 446.6 | 397.4 |
| 20° | 403.7 | 404.7 | 410.0 | 423.7 | 445.1 | 477.2 | 512.9 | 525.8 | 494.3 | 490.5 | 429.2 |
| 22.5° | 419.8 | 420.2 | 422.7 | 431.3 | 451.3 | 490.7 | 546.6 | 580.3 | 547.6 | 542.5 | 464.9 |
| 25° | 446.2 | 446.0 | 447.0 | 448.4 | 463.1 | 504.3 | 579.0 | 641.7 | 608.6 | 603.1 | 505.4 |
| 27.5° | 479.6 | 479.6 | 482.1 | 478.0 | 483.9 | 521.3 | 611.1 | 712.3 | 679.7 | 671.9 | 549.6 |
| 30° | 519.0 | 518.8 | 524.5 | 518.0 | 519.8 | 548.0 | 645.6 | 789.3 | 765.4 | 755.8 | 600.7 |
| 32.5° | 572.5 | 571.3 | 577.8 | 568.8 | 562.7 | 588.4 | 687.6 | 869.7 | 868.0 | 853.3 | 664.8 |
| 35° | 640.1 | 638.0 | 640.1 | 631.3 | 620.3 | 645.0 | 742.7 | 949.9 | 981.9 | 966.4 | 741.1 |
| 37.5° | 707.2 | 713.7 | 716.0 | 700.9 | 691.9 | 716.6 | 809.1 | 1021.7 | 1090.7 | 1074.6 | 820.5 |
| 40° | 786.4 | 784.4 | 792.1 | 775.2 | 769.5 | 796.8 | 874.0 | 1075.2 | 1176.9 | 1161.5 | 891.1 |
| 42.5° | 844.8 | 848.5 | 858.0 | 848.7 | 844.2 | 869.9 | 928.5 | 1106.4 | 1236.7 | 1221.5 | 941.5 |
| 45° | 914.8 | 917.4 | 921.1 | 913.4 | 908.7 | 934.0 | 967.9 | 1120.1 | 1282.2 | 1265.8 | 975.4 |
| 47.5° | 990.5 | 992.5 | 992.5 | 976.6 | 961.5 | 971.9 | 994.2 | 1127.9 | 1324.0 | 1308.3 | 1000.5 |
| 50° | 1044.8 | 1045.8 | 1054.8 | 1043.6 | 1010.7 | 994.6 | 1006.2 | 1135.4 | 1351.8 | 1337.1 | 1008.7 |
| 52.5° | 996.6 | 995.4 | 1025.0 | 1048.3 | 1057.0 | 1025.0 | 1027.0 | 1146.4 | 1365.2 | 1352.6 | 1015.2 |
| 55° | 839.3 | 837.2 | 878.9 | 935.4 | 1012.8 | 1053.8 | 1052.1 | 1153.0 | 1380.1 | 1372.4 | 1038.9 |
| 57.5° | 608.4 | 605.0 | 662.9 | 725.8 | 827.2 | 938.5 | 1003.8 | 1149.3 | 1386.7 | 1386.1 | 1066.4 |
| 60° | 365.8 | 362.9 | 417.6 | 483.7 | 562.1 | 673.9 | 782.3 | 1029.5 | 1299.3 | 1300.5 | 994.8 |
| 62.5° | 225.1 | 227.8 | 277.2 | 310.8 | 340.0 | 373.7 | 436.4 | 692.5 | 962.5 | 970.5 | 699.0 |
| 65° | 151.4 | 153.5 | 199.2 | 241.7 | 241.7 | 197.6 | 169.6 | 331.1 | 513.5 | 500.0 | 330.6 |
| 67.5° | 101.6 | 103.9 | 140.0 | 189.6 | 196.8 | 137.8 | 68.8 | 98.8 | 143.1 | 138.8 | 81.8 |
| 70° | 59.8 | 62.3 | 93.3 | 130.0 | 143.3 | 95.9 | 45.9 | 41.8 | 40.6 | 39.4 | 31.8 |
| 72.5° | 26.7 | 27.8 | 47.6 | 66.1 | 60.4 | 40.4 | 32.5 | 33.5 | 31.6 | 31.0 | 25.9 |
| 75° | 8.2 | 8.6 | 12.2 | 14.3 | 14.5 | 14.5 | 19.6 | 26.3 | 24.9 | 25.1 | 20.0 |
| 77.5° | 2.0 | 2.0 | 3.3 | 3.1 | 1.6 | 1.4 | 3.7 | 5.9 | 6.1 | 5.5 | 4.1 |
| 80° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| 82.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 85° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 87.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |



REPORT NUMBER: P629580

CATALOG NUMBER: GWS-SA1B-830-U-T2-W-GRSBK

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0° | 282.1 | 282.1 | 282.1 | 282.1 | 282.1 | 282.1 | 282.1 | 282.1 | 282.1 | 282.1 | 282.1 |
| 2.5° | 285.9 | 280.6 | 277.2 | 272.3 | 268.8 | 265.1 | 261.9 | 259.2 | 257.8 | 257.4 | 257.6 |
| 5° | 292.5 | 284.1 | 275.9 | 266.6 | 260.0 | 253.9 | 249.0 | 245.1 | 243.3 | 242.7 | 242.7 |
| 7.5° | 302.5 | 290.8 | 276.4 | 261.7 | 250.6 | 241.0 | 235.3 | 231.0 | 229.4 | 229.0 | 227.8 |
| 10° | 315.5 | 299.6 | 275.7 | 252.9 | 237.4 | 227.4 | 223.3 | 222.1 | 222.7 | 222.9 | 222.7 |
| 12.5° | 331.3 | 308.8 | 271.9 | 240.0 | 223.3 | 217.2 | 217.6 | 220.8 | 224.5 | 226.3 | 226.8 |
| 15° | 348.0 | 317.2 | 263.1 | 224.7 | 211.2 | 211.0 | 217.0 | 224.5 | 231.7 | 234.7 | 235.5 |
| 17.5° | 366.8 | 323.9 | 249.6 | 208.4 | 200.8 | 206.8 | 217.4 | 229.0 | 238.6 | 243.7 | 244.7 |
| 20° | 387.4 | 329.4 | 232.5 | 193.1 | 191.7 | 202.3 | 217.0 | 231.2 | 243.1 | 248.8 | 249.8 |
| 22.5° | 408.8 | 333.3 | 212.7 | 179.0 | 183.3 | 197.2 | 213.1 | 227.0 | 238.2 | 244.7 | 245.5 |
| 25° | 433.3 | 333.7 | 192.5 | 167.2 | 175.5 | 190.2 | 203.7 | 215.1 | 224.5 | 230.2 | 230.8 |
| 27.5° | 454.7 | 328.8 | 174.5 | 157.6 | 168.4 | 181.7 | 190.6 | 197.0 | 203.5 | 206.8 | 207.0 |
| 30° | 479.4 | 320.2 | 157.6 | 149.8 | 161.0 | 171.0 | 175.5 | 177.0 | 177.6 | 178.2 | 177.4 |
| 32.5° | 508.8 | 309.8 | 144.9 | 142.3 | 152.7 | 159.4 | 160.6 | 157.8 | 154.3 | 149.4 | 148.2 |
| 35° | 545.0 | 300.4 | 134.5 | 134.9 | 143.5 | 147.6 | 146.5 | 140.4 | 133.7 | 127.8 | 126.7 |
| 37.5° | 584.1 | 292.5 | 126.5 | 127.8 | 133.5 | 136.3 | 133.3 | 126.5 | 123.5 | 118.4 | 118.6 |
| 40° | 618.8 | 285.9 | 119.4 | 120.6 | 123.3 | 125.9 | 121.0 | 116.5 | 122.3 | 121.8 | 122.3 |
| 42.5° | 643.5 | 280.4 | 113.3 | 112.7 | 114.5 | 116.3 | 112.7 | 110.4 | 120.0 | 117.4 | 118.8 |
| 45° | 658.0 | 275.3 | 108.2 | 104.5 | 107.4 | 110.6 | 108.2 | 105.3 | 108.6 | 96.3 | 95.3 |
| 47.5° | 667.8 | 272.5 | 103.7 | 96.5 | 101.6 | 107.4 | 102.3 | 95.3 | 90.6 | 80.0 | 79.2 |
| 50° | 668.8 | 271.0 | 98.4 | 88.4 | 94.9 | 101.0 | 95.1 | 85.5 | 78.8 | 74.1 | 73.5 |
| 52.5° | 674.1 | 273.9 | 91.0 | 78.0 | 85.1 | 94.9 | 90.8 | 81.2 | 72.0 | 68.0 | 67.1 |
| 55° | 697.8 | 285.9 | 78.8 | 63.7 | 74.1 | 90.2 | 87.4 | 72.5 | 63.7 | 61.2 | 60.6 |
| 57.5° | 722.3 | 288.4 | 62.0 | 50.4 | 64.5 | 83.5 | 79.8 | 66.7 | 58.2 | 55.3 | 54.7 |
| 60° | 660.5 | 237.6 | 46.5 | 41.6 | 56.9 | 77.2 | 73.9 | 63.3 | 53.3 | 49.8 | 49.2 |
| 62.5° | 433.9 | 128.4 | 36.9 | 35.3 | 48.0 | 65.3 | 67.4 | 57.1 | 47.6 | 43.9 | 43.7 |
| 65° | 200.0 | 59.6 | 28.4 | 28.0 | 37.6 | 52.0 | 58.0 | 50.0 | 40.2 | 36.9 | 36.9 |
| 67.5° | 54.5 | 29.6 | 22.2 | 20.6 | 25.5 | 34.9 | 42.2 | 37.4 | 28.6 | 24.7 | 24.5 |
| 70° | 27.1 | 23.9 | 20.0 | 17.8 | 18.4 | 21.6 | 24.9 | 20.8 | 14.5 | 11.8 | 11.6 |
| 72.5° | 22.2 | 19.6 | 16.9 | 15.1 | 13.9 | 13.3 | 12.9 | 10.4 | 6.7 | 5.1 | 4.9 |
| 75° | 16.5 | 14.1 | 12.0 | 9.8 | 8.4 | 7.8 | 6.9 | 5.1 | 2.9 | 1.6 | 1.4 |
| 77.5° | 3.7 | 3.5 | 3.3 | 2.4 | 2.2 | 1.8 | 1.4 | 1.0 | 0.4 | 0.0 | 0.0 |
| 80° | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 82.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 85° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 87.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269



LM-79-2019: Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products

Report Prepared for

Cooper Lighting Solutions

MCGRAW EDISON

Report Number: SP1-2408-195-9

Test Date: 08/07/2024

Luminaire Tested: GALN-SB1A-830-U-5WQ

Data in this report applies to families of products including GALN-SB1A-830-U-5WQ.

Test Information

Test Method: LM-79-2019
 Report Number: SP1-2408-195-9
 Test Lab: COOPER LIGHTING SOLUTIONS
 Photometer: SP1 - 76IN SPHERE
 Measurement Geometry: 4π
 Issue Date: 08/07/2024
 Manufacturer: COOPER LIGHTING SOLUTIONS
 Product Line: MCGRAW EDISON
 Catalog Number: **GALN-SB1A-830-U-5WQ**
 Description: GALLEON AREA AND ROADWAY LUMINAIRE. (1) 80 CRI, 3000K, 350MA HIGH DENSITY LIGHTSQUARE WITH 26 LEDS AND TYPE V WIDE OPTICS

Spectral Parameters

CCT (K): 3050
 CIE u': 0.2476
 CIE v': 0.5251
 Duv: 0.0034
 CIE x: 0.4383
 CIE y: 0.4131
 CIE z: 0.1487
 Peak Wavelength (nm): 603
 Dominant Wavelength (nm): 581
 Purity: 55.55201
 Rf: 81.5
 Rg: 99.2

| | | | |
|-----------|------|------|------|
| CRI (Ra): | 81.0 | | |
| R1: | 79.6 | R9: | 7.1 |
| R2: | 85.6 | R10: | 67.0 |
| R3: | 92.0 | R11: | 82.7 |
| R4: | 82.6 | R12: | 63.2 |
| R5: | 78.9 | R13: | 80.3 |
| R6: | 81.7 | R14: | 95.0 |
| R7: | 85.2 | R15: | 71.7 |
| R8: | 62.0 | | |



Test Conditions

Stabilization Time: 20M
 Operation Time: 1H 20M
 Sphere Temperature (°C): 24.2

REPORT NUMBER: SP1-2408-195-9

| Measurement and Test Equipment | | | |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | IN0058 | 6/18/2024 | 12/18/2024 |
| Power Meter | INXT2011004 | 2/8/2024 | 2/8/2025 |
| AC Power Source | IN0063 | 10/24/2023 | 10/24/2024 |
| DC Power Source | IN0208 | 10/24/2023 | 10/24/2024 |
| Sphere Thermometer | IN0085 | 10/24/2023 | 10/24/2024 |
| Room Thermometer | IN0046 | 10/24/2023 | 10/24/2024 |

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CIE 1931 Chromaticity Diagram



CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



Point lies inside the ANSI 3000K 4-step quadrangle

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Photopic Flux vs. Wavelength



Photopic Lumens: NR

| λ (nm) | Power W^{\wedge}/nm | Lumens (ϕ/nm) | λ (nm) | Power W^{\wedge}/nm | Lumens (ϕ/nm) | λ (nm) | Power W^{\wedge}/nm | Lumens (ϕ/nm) | λ (nm) | Power W^{\wedge}/nm | Lumens (ϕ/nm) | λ (nm) | Power W^{\wedge}/nm | Lumens (ϕ/nm) |
|----------------|-----------------------|----------------------|----------------|-----------------------|----------------------|----------------|-----------------------|----------------------|----------------|-----------------------|----------------------|----------------|-----------------------|----------------------|
| 360 | 0 | NR | 490 | 168 | NR | 620 | 940 | NR | 750 | 35 | NR | 880 | 1 | NR |
| 365 | 0 | NR | 495 | 233 | NR | 625 | 897 | NR | 755 | 30 | NR | 885 | 1 | NR |
| 370 | 0 | NR | 500 | 300 | NR | 630 | 847 | NR | 760 | 26 | NR | 890 | 1 | NR |
| 375 | 0 | NR | 505 | 372 | NR | 635 | 790 | NR | 765 | 22 | NR | 895 | 1 | NR |
| 380 | 0 | NR | 510 | 430 | NR | 640 | 730 | NR | 770 | 19 | NR | 900 | 1 | NR |
| 385 | 0 | NR | 515 | 483 | NR | 645 | 668 | NR | 775 | 16 | NR | 905 | 1 | NR |
| 390 | 0 | NR | 520 | 524 | NR | 650 | 605 | NR | 780 | 14 | NR | 910 | 0 | NR |
| 395 | 2 | NR | 525 | 555 | NR | 655 | 545 | NR | 785 | 12 | NR | 915 | 0 | NR |
| 400 | 4 | NR | 530 | 581 | NR | 660 | 485 | NR | 790 | 10 | NR | 920 | 0 | NR |
| 405 | 7 | NR | 535 | 604 | NR | 665 | 430 | NR | 795 | 9 | NR | 925 | 0 | NR |
| 410 | 17 | NR | 540 | 623 | NR | 670 | 378 | NR | 800 | 8 | NR | 930 | 0 | NR |
| 415 | 34 | NR | 545 | 645 | NR | 675 | 331 | NR | 805 | 7 | NR | 935 | 0 | NR |
| 420 | 68 | NR | 550 | 667 | NR | 680 | 290 | NR | 810 | 6 | NR | 940 | 0 | NR |
| 425 | 128 | NR | 555 | 693 | NR | 685 | 251 | NR | 815 | 5 | NR | 945 | 0 | NR |
| 430 | 214 | NR | 560 | 719 | NR | 690 | 218 | NR | 820 | 4 | NR | 950 | 0 | NR |
| 435 | 339 | NR | 565 | 754 | NR | 695 | 188 | NR | 825 | 4 | NR | 955 | 0 | NR |
| 440 | 507 | NR | 570 | 791 | NR | 700 | 162 | NR | 830 | 3 | NR | 960 | 0 | NR |
| 445 | 573 | NR | 575 | 830 | NR | 705 | 139 | NR | 835 | 3 | NR | 965 | 0 | NR |
| 450 | 356 | NR | 580 | 873 | NR | 710 | 119 | NR | 840 | 3 | NR | 970 | 0 | NR |
| 455 | 217 | NR | 585 | 913 | NR | 715 | 102 | NR | 845 | 2 | NR | 975 | 0 | NR |
| 460 | 168 | NR | 590 | 948 | NR | 720 | 88 | NR | 850 | 2 | NR | 980 | 0 | NR |
| 465 | 113 | NR | 595 | 974 | NR | 725 | 76 | NR | 855 | 2 | NR | 985 | 0 | NR |
| 470 | 85 | NR | 600 | 994 | NR | 730 | 65 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 85 | NR | 605 | 998 | NR | 735 | 55 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 94 | NR | 610 | 994 | NR | 740 | 47 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 120 | NR | 615 | 973 | NR | 745 | 41 | NR | 875 | 1 | NR | | | |

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Scotopic Flux vs. Wavelength



Scotopic Lumens: NR

S/P: 1.27

| λ (nm) | Power W [^] /nm | Lumens (ϕ /nm) | λ (nm) | Power W [^] /nm | Lumens (ϕ /nm) | λ (nm) | Power W [^] /nm | Lumens (ϕ /nm) | λ (nm) | Power W [^] /nm | Lumens (ϕ /nm) | λ (nm) | Power W [^] /nm | Lumens (ϕ /nm) |
|----------------|--------------------------|----------------------|----------------|--------------------------|----------------------|----------------|--------------------------|----------------------|----------------|--------------------------|----------------------|----------------|--------------------------|----------------------|
| 360 | 0 | NR | 490 | 168 | NR | 620 | 940 | NR | 750 | 35 | NR | 880 | 1 | NR |
| 365 | 0 | NR | 495 | 233 | NR | 625 | 897 | NR | 755 | 30 | NR | 885 | 1 | NR |
| 370 | 0 | NR | 500 | 300 | NR | 630 | 847 | NR | 760 | 26 | NR | 890 | 1 | NR |
| 375 | 0 | NR | 505 | 372 | NR | 635 | 790 | NR | 765 | 22 | NR | 895 | 1 | NR |
| 380 | 0 | NR | 510 | 430 | NR | 640 | 730 | NR | 770 | 19 | NR | 900 | 1 | NR |
| 385 | 0 | NR | 515 | 483 | NR | 645 | 668 | NR | 775 | 16 | NR | 905 | 1 | NR |
| 390 | 0 | NR | 520 | 524 | NR | 650 | 605 | NR | 780 | 14 | NR | 910 | 0 | NR |
| 395 | 2 | NR | 525 | 555 | NR | 655 | 545 | NR | 785 | 12 | NR | 915 | 0 | NR |
| 400 | 4 | NR | 530 | 581 | NR | 660 | 485 | NR | 790 | 10 | NR | 920 | 0 | NR |
| 405 | 7 | NR | 535 | 604 | NR | 665 | 430 | NR | 795 | 9 | NR | 925 | 0 | NR |
| 410 | 17 | NR | 540 | 623 | NR | 670 | 378 | NR | 800 | 8 | NR | 930 | 0 | NR |
| 415 | 34 | NR | 545 | 645 | NR | 675 | 331 | NR | 805 | 7 | NR | 935 | 0 | NR |
| 420 | 68 | NR | 550 | 667 | NR | 680 | 290 | NR | 810 | 6 | NR | 940 | 0 | NR |
| 425 | 128 | NR | 555 | 693 | NR | 685 | 251 | NR | 815 | 5 | NR | 945 | 0 | NR |
| 430 | 214 | NR | 560 | 719 | NR | 690 | 218 | NR | 820 | 4 | NR | 950 | 0 | NR |
| 435 | 339 | NR | 565 | 754 | NR | 695 | 188 | NR | 825 | 4 | NR | 955 | 0 | NR |
| 440 | 507 | NR | 570 | 791 | NR | 700 | 162 | NR | 830 | 3 | NR | 960 | 0 | NR |
| 445 | 573 | NR | 575 | 830 | NR | 705 | 139 | NR | 835 | 3 | NR | 965 | 0 | NR |
| 450 | 356 | NR | 580 | 873 | NR | 710 | 119 | NR | 840 | 3 | NR | 970 | 0 | NR |
| 455 | 217 | NR | 585 | 913 | NR | 715 | 102 | NR | 845 | 2 | NR | 975 | 0 | NR |
| 460 | 168 | NR | 590 | 948 | NR | 720 | 88 | NR | 850 | 2 | NR | 980 | 0 | NR |
| 465 | 113 | NR | 595 | 974 | NR | 725 | 76 | NR | 855 | 2 | NR | 985 | 0 | NR |
| 470 | 85 | NR | 600 | 994 | NR | 730 | 65 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 85 | NR | 605 | 998 | NR | 735 | 55 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 94 | NR | 610 | 994 | NR | 740 | 47 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 120 | NR | 615 | 973 | NR | 745 | 41 | NR | 875 | 1 | NR | | | |

REPORT NUMBER: SP1-2408-195-9

Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 2.32

| λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) |
|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|
| 360 | 0 | NR | 490 | 168 | NR | 620 | 940 | NR | 750 | 35 | NR | 880 | 1 | NR |
| 365 | 0 | NR | 495 | 233 | NR | 625 | 897 | NR | 755 | 30 | NR | 885 | 1 | NR |
| 370 | 0 | NR | 500 | 300 | NR | 630 | 847 | NR | 760 | 26 | NR | 890 | 1 | NR |
| 375 | 0 | NR | 505 | 372 | NR | 635 | 790 | NR | 765 | 22 | NR | 895 | 1 | NR |
| 380 | 0 | NR | 510 | 430 | NR | 640 | 730 | NR | 770 | 19 | NR | 900 | 1 | NR |
| 385 | 0 | NR | 515 | 483 | NR | 645 | 668 | NR | 775 | 16 | NR | 905 | 1 | NR |
| 390 | 0 | NR | 520 | 524 | NR | 650 | 605 | NR | 780 | 14 | NR | 910 | 0 | NR |
| 395 | 2 | NR | 525 | 555 | NR | 655 | 545 | NR | 785 | 12 | NR | 915 | 0 | NR |
| 400 | 4 | NR | 530 | 581 | NR | 660 | 485 | NR | 790 | 10 | NR | 920 | 0 | NR |
| 405 | 7 | NR | 535 | 604 | NR | 665 | 430 | NR | 795 | 9 | NR | 925 | 0 | NR |
| 410 | 17 | NR | 540 | 623 | NR | 670 | 378 | NR | 800 | 8 | NR | 930 | 0 | NR |
| 415 | 34 | NR | 545 | 645 | NR | 675 | 331 | NR | 805 | 7 | NR | 935 | 0 | NR |
| 420 | 68 | NR | 550 | 667 | NR | 680 | 290 | NR | 810 | 6 | NR | 940 | 0 | NR |
| 425 | 128 | NR | 555 | 693 | NR | 685 | 251 | NR | 815 | 5 | NR | 945 | 0 | NR |
| 430 | 214 | NR | 560 | 719 | NR | 690 | 218 | NR | 820 | 4 | NR | 950 | 0 | NR |
| 435 | 339 | NR | 565 | 754 | NR | 695 | 188 | NR | 825 | 4 | NR | 955 | 0 | NR |
| 440 | 507 | NR | 570 | 791 | NR | 700 | 162 | NR | 830 | 3 | NR | 960 | 0 | NR |
| 445 | 573 | NR | 575 | 830 | NR | 705 | 139 | NR | 835 | 3 | NR | 965 | 0 | NR |
| 450 | 356 | NR | 580 | 873 | NR | 710 | 119 | NR | 840 | 3 | NR | 970 | 0 | NR |
| 455 | 217 | NR | 585 | 913 | NR | 715 | 102 | NR | 845 | 2 | NR | 975 | 0 | NR |
| 460 | 168 | NR | 590 | 948 | NR | 720 | 88 | NR | 850 | 2 | NR | 980 | 0 | NR |
| 465 | 113 | NR | 595 | 974 | NR | 725 | 76 | NR | 855 | 2 | NR | 985 | 0 | NR |
| 470 | 85 | NR | 600 | 994 | NR | 730 | 65 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 85 | NR | 605 | 998 | NR | 735 | 55 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 94 | NR | 610 | 994 | NR | 740 | 47 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 120 | NR | 615 | 973 | NR | 745 | 41 | NR | 875 | 1 | NR | | | |

Summary

$R_f = 81.5$
 $R_g = 99.2$
 $CIE R_a = 81.0$
 $R_9 = 7.1$



Color Vector Graphics



Individual Sample Fidelity Index ($R_{f,i}$)

| | | | |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 74 | CES51 = 89 | CES76 = 70 |
| CES02 = 63 | CES27 = 88 | CES52 = 92 | CES77 = 86 |
| CES03 = 31 | CES28 = 89 | CES53 = 81 | CES78 = 72 |
| CES04 = 70 | CES29 = 67 | CES54 = 87 | CES79 = 90 |
| CES05 = 50 | CES30 = 68 | CES55 = 85 | CES80 = 88 |
| CES06 = 51 | CES31 = 71 | CES56 = 78 | CES81 = 78 |
| CES07 = 42 | CES32 = 70 | CES57 = 76 | CES82 = 95 |
| CES08 = 41 | CES33 = 71 | CES58 = 78 | CES83 = 90 |
| CES09 = 29 | CES34 = 82 | CES59 = 92 | CES84 = 94 |
| CES10 = 76 | CES35 = 90 | CES60 = 95 | CES85 = 86 |
| CES11 = 59 | CES36 = 93 | CES61 = 93 | CES86 = 72 |
| CES12 = 65 | CES37 = 87 | CES62 = 83 | CES87 = 85 |
| CES13 = 43 | CES38 = 75 | CES63 = 77 | CES88 = 83 |
| CES14 = 74 | CES39 = 94 | CES64 = 83 | CES89 = 75 |
| CES15 = 71 | CES40 = 89 | CES65 = 77 | CES90 = 81 |
| CES16 = 47 | CES41 = 85 | CES66 = 80 | CES91 = 96 |
| CES17 = 50 | CES42 = 86 | CES67 = 79 | CES92 = 73 |
| CES18 = 56 | CES43 = 81 | CES68 = 84 | CES93 = 84 |
| CES19 = 72 | CES44 = 99 | CES69 = 91 | CES94 = 64 |
| CES20 = 66 | CES45 = 87 | CES70 = 78 | CES95 = 80 |
| CES21 = 87 | CES46 = 82 | CES71 = 76 | CES96 = 84 |
| CES22 = 79 | CES47 = 77 | CES72 = 92 | CES97 = 87 |
| CES23 = 92 | CES48 = 71 | CES73 = 71 | CES98 = 81 |
| CES24 = 91 | CES49 = 81 | CES74 = 93 | CES99 = 74 |
| CES25 = 72 | CES50 = 89 | CES75 = 74 | |



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)